# UnderSea Technology Index, Volume 7, 1966

This is a three-part instant-reference index of technical material and news appearing in Volume 7, 1966. Part 1, Monthly Contents; Part 2, Authors; Part 3, Subject Index. Numbers following title, author or subject are month and page number.

PART 1-MONTHLY CONTENTS		New Submersibles Effects of Acoustic Ray Bending on Navi- gation of Manned Submersibles	32	DECEMBER 1966 A Case of Nitpicks
TITLE JANUARY 1966	PAGE	gation of Manned Submersibles NEMO—A New Undersea Observatory Profile—Coastal Engineering Research	33 39	
Undersea Land Rush, 1966 Style Navy Currents	17	Center, Save the Beaches, Build Better Breakwaters	43	Navy Currents OECON '67 Offshore Exploration Conference 1 Deep Ocean Coring Planned for 1968 1,000 Attend Frankfurt U.S. Trade Center Show 1
Capital Report 1965 Review & 1966 Forecast Introduction	19	Maritime Administration's New Look, Non-Subsidy Shipping Proposed	46	Weather, Oceanographic Buoys—Should They be Combined?
Man-In-The-Sea, Key to Ocean Exploration	25 26	Profile—Phoenix Products Co., Flight of The Phoenix	49	Capital Report 2 Cable From The Blue Ridge 2
'66-Year To Reap Benefits of Research Seapower-Key to New Ocean Markets	31 36	Product Development-Expendable BT	56	Cable From The Blue Ridge 22 Omega VLF Navigation System Makes Progress 22 Bureau of Standards Moves to New Home 22
Congress Sharpens Ocean Interests Offshore Oil Wells Go For Deep Water	43	Research	60	ONR Completes Feasibility Tests for
U. S. Fisheries Can Match Competition U. S. Leads World Desalination Progress	47 51	Monkey on Whose Back?	7	Research Ships of Opportunity OSTAC Broadens NSIA Ocean Interest
World Law Opens New Sea Frontier Sea Bottom Tapped For Fresh Water	53 59	Navy Currents	8	Side Scan Sonar System 3 Profile—Sippican Corporation and Francis
Co-op Effort Pioneers Undersea Mining	61	Moscow Congress Draws 2,000 Navy Leaguers Hear Role of Oceanography	10	Associates, From Ocean Products to Space
Profile—Alpine Geophysical Product Development—Diving Mask	63 70	Bissett-Berman Receives Compass Industrial Award	18	Systems Product Development-Plessey Current Meter 3
International	71	Capital Report	20	Undersea Technology, Index, Volume 7, 1966 3 Research 4
FEBRUARY 1966	7	Henry B. Bigelow Honored With Compass Award by MTS	21	Research
Put The Breadboard In A Museum Navy Currents	12	Profile—Naval Electronics Laboratory Industry Bees Swarm at NEL	23	
Capital Report Deep Submergence Given Special Status,	15	Profile—Vitro Laboratories Products: Hardware, Brains		DADT O AUTHORS
Man's-Extension-Into-The-Sea Symposium	19	Cable and Hydrophones for AUTEC	26 29	PART 2—AUTHORS
Practical Depth Determination For Multi-Sensor Towed Systems Profile—Westinghouse Undersess Division	22	Deep Jeep Product Development-Command System	33 38	Beaufort, Dr. Roger 1/71, 3/52, 5/100, 7/47 9/67, 11/66
Profile—Westinghouse Underseas Division Diversification Into The Productive Sea	30	Plastic Underwater Antenna	39 47	Bondon Lewis A 5/79
Diversification Into The Productive Sea Skin Diving At High Altitudes Buoy-Pak Raises Sunken Vessel From	33	International	4/	Booda, Larry L. 1/9-17-19, 2/7-12-15-30 3/12-20-31, 4/11-14, 5/9-20-22-37 6/7-13-20-43, 7/7-8-20-23, 8/7-9-20-23
750-foot Depth	38	Apples and Oranges	7	6/7-13-20-43, 7/7-8-20-23, 8/7-9-20-23 9/7-17-20-30, 10/5-9-20-23, 11/7-13-20-43
Ocean Budget Up 23 Percent Product Development—Undersea Housing	40	Navy Currents	9	12/5-9-20-33
Research	46	NOL Studies Under-Ice Acoustics Capital Report	15 20	Bourbeau, Frank 9/39 Bradley, Edward 1/59
MARCH 1966		Remarks of President Lyndon B. Johnson at Commissioning of the "USC&GSS		Bradley, Edward 1/59 Caldwell, RAdm. Turner F. (USN) 1/31 Chapman, Dr. Wilbert McLeod 1/47
Will Russia Win The Wet Space Race? Capital Report	12	Oceanographer"	22	Chrameic, Mark A. 9/49
Navy Currents Ocean Spending Grows Despite War	20	President Releases PSAC Panel Report MTS Show Report, Bigger Benefits Per Dollar Can Be Realized From Ocean	23	
A Low-Cost Buoyant Element for Deep- Submergence Applications	23	Dollar Can Be Realized From Ocean Exploitation	27	Clark, Dr. John W. 5/06 Corwin, Dr. Gilbert 1/55 Cousteau, Capt. Jacques-Yves 1/25 Covey, Charles W. 6/22, 12/20
World's Only Fisheries Submarine	29	Ocean Engineering At Florida Atlantic	33	Di Luzio, Frank C. 1/31
Profile—Environmental Science Services Administration, ESSA Encompasses Sea,		University Underwater Acoustic Test Vehicle	37	Dorr, J. A. 6/3: Dye, Stuart S. 1/5:
Earth, Air, Space Passive Sonar Aids Deep-Sea Research on	31	Research	51	Edgerton, Dr. Harold E. 4/21 Forman, W. R. 7/33
Trident	36	SEPTEMBER 1966	7	
Profile-Lockheed Aircraft Co. Quest Into The Deep	39	Beyond the Moon-The Sea Marine Council Meets; Wenk Named	7	Goodier, J. Leslie 1/6 Gross, Seymour 2/23 Hayes, Helen 12/2:
Magnuson Heads MTS Conference Panel Product Development—Flotation System	42 48	Executive Secretary	13 17	Hayes, Helen 12/2: Holmer, E. C. 1/43
International 4	52	Navy Currents Capital Report	20	Knauss, Dr. John A. 5/74
APRIL 1966		Profile—The Oceanic Foundation, Hawaii Calls Ocean Scientists, Engineers, Industry World's Largest Pressure Test Complex	24	Kness, Edward F. 4/3: Kreitner, Frederick J. 10/3: Landis, Arthur T. Jr. 2/46, 4/48, 6/61, 8/51
Two Innerspaces? Navy Currents	7	World's Largest Pressure Test Complex Being Built at Marine Engineering Lab	30	Landis, Arthur T. Jr. 2/46, 4/48, 6/61, 8/51 10/5:
Capital Report	14	Submersible Chamber Working Off Surinam	37	Leipper, Dale F. 2/22
Profile-Edo Corporation, From Aviation To Underseas	16	Undersea Photometer For Marine Biological Studies	39	McFarlane, Robert N. 11/53
GE Integrates Oceanics Effort Deep Sea Incandescent Lamps	19	Plywood Hulls For Underwater Vehicles Sub-Bottom Profiling With A Replica	46	Moldenhauer, J. G. 6/39 Orr, James F. 7/39
Profile—The Bissett-Berman Corp.		Correlation Receiver Product Development—Azimuth Indicator	49 57	Parks, Cdr. Larry G. (USN) 1/53
Measuring the Oceans An Analysis of Ocean Reverberation	31	International	67	Peredo, Dr. Miguel Guzman 2/33 Perkins, Paul J. 3/36
Research	48	OCTOBER 1966		Perkins, Paul J. 3/36 Rogers, Rep. Paul G. 3/9 Stachiw, J. D. 5/42, 6/39, 9/47
MAY 1966	9	Mass Production for Trawlers Navy Currents	5	Stephan, Charles R. 8/33 Stewart, Dr. Harris B. Jr. 1/26 Stowell, D. T. 6/39 Snyder, Roger F. 8/37
Inventory & Audit: II Capital Report	20 22	Globe Shows Land, Sea Area in Relief	13	Stowell, D. T. 6/39
Navy Currents CURV Recovers The H-Bomb	22 25	Maine-New Hampshire Form Oceanographic Commission	14	Snyder, Roger F. 8/37 Troutner, Richard T. 4/21
Rogers Urges Broader Hill Support	30	Western Europe Oceanographic Equipment Symposium and Exposition	17	Truitt, Joel 7/14
For DSSP Profile—Scripps Institution of Oceanography,		Capital Report	20	Veath, J. Gordon 12/17
Research—But Emphasis on Education Conical Acrylic Windows For Deep Sea	37	Profile—Coast Guard Oceanography Grows Navy Doubles Capacity of Deep Sub-	23	Walsh, George M. 9/49 Waters, RAdm. Odale D. Jr. (USN) 11/33
Applications	42	mergence Rescue Vehicle Trieste II Gets New Navigation &	27	Wenk, Dr. Edward Jr. 1/36
Program—Marine Technology Society 2nd Annual Conference & Exhibit,	-	Control System	31	
"Exploiting The Ocean" Profile—The Kollmorgen Corporation	50	Department of Interior Names Sea Resources Team	40	*
The Fisheye View Structure and Probable Growth of	63	Profile—Amecom Division of Litton Industries, Amecom Geared for ASW		PART 3—SUBJECT INDEX
The Oceanic Business	66	Market	41	SUBJECT MONTH/PAGE
The U.S. Needs Sea-Grant Colleges Telemetry From Ocean Platforms	74 79	Research	52	acoustic, command system 7/38 acoustic lens, underwater 3/11
Product Development-Hydrophone Calibrator	83 100	And Yet Another Study	7	acoustic navigation 6/33, 11/56
International	100	Navy Currents	13	acoustic ray bending 6/33 acoustic research DIVEAR 8/37
JUNE 1966 Babel in the Ocean	7	Capital Report ASW Market Firm Despite War:	20	acoustics, under ice 8/15
Navy Currents House and Senate Agree; Bill Goes to	13	Vital Industry Role Grows Reliability: Watchword of ASW Progress	22	acrylic windows, deepsea 5/42 air bubble vehicle 6/19
President	14	Reliability: Watchword of ASW Progress The Navy's New Oceanographic Program ASW Project Office in Second Shakedown	33	ALUMINAUT, submersible 11/19
Capital Report Instrumentation Dilemma	20 22	ASW Project Office in Second Shakedown Sound is 'King' But Non-Acoustic Systems		Aluminum Association, Commercial Marine Committee, Fishing Vessel Design 10/19
SPAR Goes Operational	27	Show Future Promise Industry Participation in ASW	43 53	aluminum-glass, housings 2/41 Alpine Geophysical Associates, Inc.,
LeTourneau Built Rig Starts Operation				(profile) 1/63

### **Oceanaut**

Our Hydrospace engineers wrote the book on undersea technology.

They're responsible for the creation of the finest underwater equipment in the world: U.S. Divers Company's Aqua-Lung® equipment. The equipment used on CONSHELF, SEA LAB and other important underwater research projects. The equipment used by our Navy, our Green Berets and by many of the navies of the world.

U.S. Divers has the capabilities to design — or help you design — breathing equipment and systems components according to your specialized needs. And U.S. Divers has the facilities to manufacture it to exact specifications. Many Aqualung items like our Constant Volume Suit, Recompression Chamber and Portable Compressor were originally custom-designed to answer a particular problem.

Is the need for custom underwater equipment holding up your project? . . . or your progress? Write our Chief Engineer, R & D Section. Tell him what you want the equipment for, and what you want it to do. Our oceanauts have the technology to come up with the answer.

U.S.DIVERS CO.

3323 West Warner Avenue Dept. I-12 Santa Ana, California Telephone: (714) 549-2241 Cable: AQUALUNG



Circle No. 26 on Inquiry Card

ALVIN, submersible ALVIN II, submersible AMECOM Div., Litton Industries, (profile) And Yet Another Study (editorial) antarctic, water temperature	1/33 8/45
AMECOM Div., Litton Industries, (profile)	10/41
antarctic, water temperature	10/52
Antisubmarine Warfare Environmental	7/39
Prediction System (ASWEPS) Antisubmarine Warfare (ASW)	10/42
acoustics industry role 11/22,	11/43 11/53 9/20 11/39
legislation	9/20
management NSIA Committee oceanography 1/31,	
procurement 1/31,	11/33 11/53
reliability research 11/7,	11/23
systems engineering systems project	7/8
systems project systems & weapons Apples and Oranges (editorial)	8/7
appropriations, congressional aquaculture	8/20
arctic,	9/36
research island survival suit temperature studies	10/37
Argentina	7/47
ASHERAH, submersible ASROC	1/34
ASW (see Antisubmarine Warfare) ASWAC (ASW Advisory Committee) ASWEPS (ASW Environmental Prediction	11/53
ASWEPS (ASW Environmental Prediction System)	10/42
Atlantic Undersea Test and Evaluation Center (AUTEC)	7/29
a'omic power, undersea mining AUTEC (Atlantic Undersea Test and	1/21
Evaluation Center)	7/29
AUTEC I, submersible azimuth indicator, electrical	8/45 9/57
Babel in the Ocean (editorial) basic research, oceanographic 1/27,	1/33
bathymetric navigation bathyscaphe TRIESTE II	1/33 3/22 10/31
bathythermograph, (BT)	11/66
	12/33
system beach errosion control 3/43,	6/56
beach errosion control 3/43, BEAVER III, submersible 8/36, Beyond The Moon — The Sea (editorial)	9//
Henry B. Bigelow, award	7/21
Bissett-Berman Corp., award Bissett-Berman Corp., (profile)	7/18 4/31
	1/10
Boston Sea Rovers 2/11, Buchanan, Chester L., award budget, sceanography, federal 2/40,	5/19 7/32 3/11,
3/12, 3/21, 4/13,	6/20
	3/23 11/19
buoys, oceanographic 1/29, buoys, weather	12/17
buoy system, materials	3/23 5/79
Bureau of Mines, US Bureau of Standards	1/15
Burma	7/47
BuShips, personnel Brazil 7/47,	11/66
cable failures 2/46, cable laying, AUTEC	5/45
cables, submarine 11/55,	12/22
calibration, hydrophone Canada 5/100, 7/47,	5/83
carbon dioxide, ocean carrier landing system	2/11
Chief of Naval Material 9/17	12/6
Ch'ef of Naval Operations circulation, ocean	1/13
Constal Engineering Research Center,	6/43
(profile) communications cable, failure	5/45
communications, satellite	7/22
ship Commission, Marine Resources	3/43 6/14
Compass Distinguished Achievement Award Compass Industrial Award	7/21 7/18
compressibility, sea water computer	2/46
chastal engineering ship design	3/35 7/13
conference, MTS 5/50, 7/22, 8/27.	8/28
Congress, legislation, oceanography 1/19, CONSHELF, Cousteau continental drift 4/48,1	1/25
continental drift 4/48,1 continental shelf,	
legal minerals	1/9
SUEVEN	0/31
conventions, international, sea core analysis	1/54 3/38
coring 2/36, 1	2/12
correlated signals, profiling corrosion study	9/49 2/37
Council, Marine Resources countercurrents, Atlantic	6/14 6/60
coomerconema, mining	0,00

Cuba current detection current meters currents, cable failure	1/71,	9/67 4/48 12/36 2/46
	11/53,	11/58 11/66 11/19 6/7 1/22 2/33 7/33
animals tide study	0, 6/19, ents DSRV) 19, 6/13 n (DSSP) '31, 6/13 , 10/27,	6/60 1/21 7/23 3/23 5/20, 9/19 1/67, 1, 8/9, 11/19 8/15
Denmark Dept. of Interior, Resources Team depth determination system depth suspension system desalination,	7/47,	11/66 10/40 2/22 3/48
plant review 1965	2/36,	6/35
DIVEAR (Diving Instrumentation Ve for Environmental and Acoustic I divers, face mask dive, simulated test diving, high altitude DOWB (Deep Ocean Work Boat) drilling platform, offshore DSRV (see Deep Submergence Rescue	Research)	8/37 1/70 4/30 2/33 8/44 6/30
DSSP (see Deep Submergence System	_	
earth globe, oceanographic East Germany echo sounder Edo Corporation, (profile) education,	3/52,	10/13 5/100 11/69 4/16
general ocean engineering oceanography sea grant colleges Effective Use of the Sea electronics, shipboard ELF (Extremely Low Frequency)		1/30 8/33 9/19 5/74 8/23 4/16 7/39 1/71
England Environmental Science Services Admi (profile) erosion control		3/31
ESSA (Environmental Science Services Administration) 1/27, 3/31, 6/16,	10/20,	12/19
exhibits, foreign, oceanographic MTS 5/50, 7/2 expedition, survey 2/34 expendable BT 3/16, 6/56, exploration-research, policy exploration, seismic data Extremely Low Frequency (ELF)		12/14 8/28 12/10 12/33 3/42 11/59 7/39
face mask, diving failure, undersea cable Fast Deployment Logistic Ship		1/70 5/45
Project (FDL) Federal budget FY-'67 Federal organization (editorial) fisheries, 12 mile limit bill fisheries,	7/18, 1	9/20 3/21 4/7 11/20
budget production review 1965 Soviet-US policy submarine		4/13 6/31 1/47 9/67 3/28
Swedish vessels Tennessee Fishing Boat trawler production yellowfin tune fishing sonar Fishing Treaty, ratification	10/5	1/59 0/26 0/19 3/35 5/82 7/47
FLIP Florida Atlantic University (profile) flotation, ship recovery flotation system forging, high temperature alloys France 1/71, 3/52,	1	4/26 8/33 2/38 3/48 1/69 1/66
Francis Associates (profile) Frankfurt U.S. Trade Center Show fresh water, see bottom fresh water reservoir	11/17,	2/31 2/14 1/59 0/52
generators, nuclear deepsea geostrophy Germany Gibralter glass-aluminum, housings Great Lakes sea lampreys Gulf Stroum studies	9/67, 1	8/45 8/51 1/66 3/52 2/41 8/17
Gulf Stream studies		3/45
M-bomb recovery, Spain 2/11, habitat, sea-room Hawaii, sea research helium, breathing gas h'gh allitude, skin diving housings, glass-aluminum hydroacousite, transducer	5/85, 9/24,	8/44 9/53 8/51 2/33 2/41 9/49
hydrofoil gunboats Hydro Lab I (Continued on page 43	)	3/33 8/35
UNDERSEA TEC	HNOLO	nev

hydrophone array, underwater hydrophones, AUTEC hydrophone calibrator	8/15 7/29 5/83
Iceland	11/66
ICO, (Interagency Committee On	Oceanography)
budget FY-'67	3/21
publications	4/28
incandescent lamps, deepsea	4/21
Independent Variable Depth Son	ar (IVDS) 10/43 11/23, 12/27
industrial support, ASW instrumentation,	11/20, 12/2/
azimuth indicator	9/57
hydrophones	7/29
navigation	11/56
optical	5/63
photography	4/21
photometer	9/39
physical measurements 4/	31, 12/31, 12/36
reliability	6/22
sensors	4/31
sonar	3/36
survey	1/26 5/79
telemetry	8/37
test, acoustic test, high pressure	9/30
underwater antenna	7/39
international conventions, legal	1/53
International Ice Patrol	9/67, 10/23
international law, sea	1/53
International Oceanographic Cor	ngress 7/10
International Oceanographic Data	Exchange 8/19
international water resources	11/13
Inventory & Audit II (editorial)	5/9
Italy	3/52
ITT Federal Labs, AUTEC IVDS (Independent Variable Dep	7/29 oth Sonar) 10/43
IVDS (Independent variable bet	in Sonar) 10/43
Japan	1/71, 11/66
Johnson, President Lyndon B.	8/23
JOIDES (Joint Oceanographic In	stitutions
Deep Earth Sampling Program)	4/29, 8/19, 12/12
Kollmorgen Corporation, (profile	5/63
Kommorgen Corporation, (profile	3/03
laboratories, Navy, reorganization	on 8/9
lamps, underwater	1/22, 4/21
law of the sea	1/9, 1/53, 3/16
legislation,	
oceanographic 2/15, 3/42,	5/20, 5/74, 6/14,
6/20, 7/7, 7/20, 8/7,	8/20, 9/20, 11/2
review 1965	1/36
sea grant colleges	5/74, 11/20 4/30
life support, dive	8/45
lights, underwater	4/21, 11/69
liquid, sonar lens	8/12
request, surror veris	W/ 1.4.

	3/3
Maine-New Hampshire Bi-State Commission	
	0/1
Man-In-The-Sea	
CONSHELF	1/2
(editorial)	2/
research	1/2
test	4/3
	B/2
marine biology (see fisheries)	
	9/3
	9/31
	6/11
Marine Resources & Engineering Act 7/20, 1	3/2
Marine Technology Society,	
	3/4
	4/1:
	4/2
	7/3
conference program '66 conference program '67	5/50
conference program '67	7/22
conference report '66	3/27
Maritime Administration 6/46, 1:	2/2
market analysis, undersea	5/60
Mass Production for Trawlers (ecitorial)	10/
	2/3
	5/49
	2/17
	7/67
	1/29
	3/35
military oceanography 10/9, 11	
	1/48
mine warfare	/35
mining, undersea 1/61, 1/67, 2	2/46
Mohole 4/48, 6	
Monkey On Whose Back (editorial)	7/7
MUST, Cousteau	1/25
NASA, oceanographic data	2/1
NASA, sea floor profile 3	/22
National Academy of Engineering 9	/32
	2/2
National Commission on Marine Science,	.,
Engineering and Resources 9/13, 9/19, 11	/20
National Council on Marine Resources &	,
Engineering 9/13, 9/19, 10/20, 11/20, 12	2/20
National Science Foundation, organization	/15
National Security Industrial Association	,
(NSIA) 11/53, 12	1/27
	/23
Naval Marine Engineering Laboratory	/30
Naval Oceanographic Program 11	/33
Naval Ordnance Laboratory 6/27, 8	/15
Naval Ordnance Test Station 7	/33
navigation,	, 30
	/28
ri accurry	. 20

TRIESTE II	10/31
underwater	10/37, 11/56
Omega 8/19	, 11/46, 12/24
Navy League, convention	7/14
Navy,	
personnel	2/12, 11/13
reorganization	4/14, 9/20
research organization	4/11
NEMO, undersea observatory	6/39
Netherlands	3/52, 7/47
Newfoundland	9/67
nickel	11/69
noise, underwater	4/35
north azimuth indicator	9/57
North Sea	1/71, 5/100
nuclear deepsea generators	8/45
nuclear fallout	2/46
nuclear powered submersible	7/8
nuclear submarine, Soviet	5/19
oceanic business growth	5/66
Oceanic Foundation, (profile)	9/24
Oceanographers of the Navy	10/9
Office of Naval Research	5/20, 11/43
offshore,	
drilling platform	6/30
Exploration Conference	12/10
petroleum	1/43, 1/67
seismic data	11/59
storage tank	9/58
submersible chamber	9/37
Omega navigation system 8/19,	
optical systems	5/63
organization,	
ASW 11/23, 11/39,	
Marine Resources Council	11/20
Navy	4/14
oceanic, General Electric	4/19
oyster research	10/53
periscopes	5/63, 11/69
personnel, Navy	11/13
Peru	5/100
petroleum, offshore 1/43, 1/67,	, 6/30, 9/37,
	9/58, 11/59
Philippines	5/100
Phoenix Products Co., (profile)	6/49
photometer, underwater	9/39
photography lamps, undersea	4/21
physiology, underwater	2/11, 8/51
plastic, underwater antenna	7/39
platform, underwater	6/16
plywood hulls, underwater vehicle	es 9/46
Poland	3/9, 3/52
polar sea heat	4/48
polypropylene, buoyant elements	3/23
port covers, deepsea application	5/42

## SGG RESEARCH & DEVELOPMENT, INC.

A NEWCOMER WHO CAN PROVIDE YOU SERVICE

Sea Research and Development, Inc. may be a newcomer in the business — but, they are old hands when it comes to experience and service. They will serve you in research, survey towing, salvage and with other support vessels available for hire . . . as well as manning services. Our operations are based at Sea Terminals, Inc., 2995 N.W. South River Drive, Miami, Florida.

For complete details on our services, please call, wire, or write: **SEA RESEARCH & DEVELOPMENT, INC.** P. O. BOX 589 / BARTOW, FLORIDA 33830 PHONE: 813/533-7197 CABLE: SEARANDINC TWX: SEARAND BTW



Circle No. 27 on Inquiry Card

### For ONLY \$975— Test to 600 Feet in your Laboratory.



This 6" i.d. x 16"-long chamber, ASME-coded for 300 psig can be used for Lab-testing underwater gear and observing sea life at depth.

Arrives complete with special regulator, gauge, hose, safety valve, and flowmeter for immediate operation from standard gas cylinder.

Included are 2 stopcocks to introduce or remove samples, 16 pressure-proof transducer leads for monitoring, 5-inch glass viewport, 7 extra plugged penetrations for making gas mixtures.

No. 615 Table-top Hyperbaric Chamber \$975 F.O.B. Bethlehem, Pa.



THE Hyperbaric Oxygen Therapy Division

BETHLEHEM
CORPORATION ESTABLISHED 1856

Large and small chambers for control of pressure, vacuum, temperature and humidit

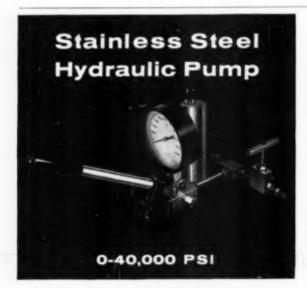
Circle No. 28 on Inquiry Card

POSEIDON system	5/69
pressure test lab	9/30
productivity, oceanic	6/60
program, MTS Conference '66	5/50
Project Neptune Limnos	8/36
Project Stromfury	9/36
	3/33
propellers, hydrofoil	11/19
propulsion, DSRV	4/10
protein concentrate 1/4/	6/19
PSAC (President's Science Advisory Commit	Tee
Panel on Oceanography) 8/7, 8/20, 8/23	8/23
Public Law 89-454	7/20
Put The Breadboard In A Museum (editorial)	2/7
radiation thermometer, Gulf Stream	3/16
radioactivity, see	6/60
radiolectors, news, undersea	9/19
radioisotope power, undersea radioisotope research, ocean	6/19
radioisotope research, ocean	10/52
Red Sea, salinity & temperature	10/19
regional organizations 5/19, 10/15,	10/19
regulations, vessels	12/6
reliability,	
ASW	11/23
instrumentation	6/23
research & development, oceanic	
ASW	11/43
Arctic vessel	9/36
Hawaii	9/24
Navy organization	4/11
NSF report	5/69
review 1965	1/26
Research Ships of Opportunity 8/36,	
research-survey, sea 1/26, 4/26, 5/19, 5/37,	5/82
1950arch-survey, see 17.20, 47.20, 57.17, 57.57	12/25
	10/40
Resources Team, Dept. of Interior	4/35
reverberation, analysis	
review, events (editorial)	1/9
review & forecast, 1965-1966	1/24
review, oceanography (editorial)	5/9
Rochester Ropes, Inc. (profile)	12/22
Russian oceanography 1/71, 3/9, 3/28,	3/52,
Russian oceanography 1/71, 3/9, 3/28, 5/19, 7/19, 9/20, 9/67,	11/66
Nalta massacrata	4/31
salinity measurements	
	8/12
sampling, ocean core	12/12
salmon counting, soner salvage, flotation system	9/35
salvage, flotation system	2/38
satellite, ocean data	11/69
scattering layer, studies	6/60
Scripps Institution of Oceanography,	
(profile)	5/37
sea grant colleges 1/15, 5/20, 5/22,	5/74.
8/20,	11/20
Sealab 2/7, 2/12, 4/13, 7/8,	11/19
	8/17
sea lampreys, Great Lakes	9/24
Sea Life Park	1124

SEAMAP, project	1/26
seapower, review	1/31
see-room,underwater structure	8/44 2/46
sea water compressibility sea water density	8/51
seismic profiling	9/49
sharks	2/11
shipboard satellite communication	ns 7/22
ship construction	9/20
ship design computer	7/13
shipping subsidy, proposal	6/46
shipping, Vietnam Ships of Opportunity	8/36, 12/25
Sippican Corp. (profile)	12/31
skin diving, high altitude	2/33
sonar 1/33, 3/36, 4/16, 4/35, 5/	82, 8/12, 9/35,
5 A A 6-1	11/43, 12/31
South Vietnam, Naval activity	5/100
Soviet Union,	1/1/
oceanography 1/71, 3/9, 3/2	8. 3/52. 5/19.
7/19, 9/	20, 9/67, 11/66
shipbuilding	9/20
SPAR	1/32, 6/27
spending, ocean industry	3/45
state fisheries, aid Stormfury, Project	9/32 9/36
sub-bottom profiling	9/49
submarine cables	11/55
submarine, fisheries research, Sov	
submersibles, acoustic navigation	6/33
submersibles, deepsea study	1/33
submersibles, plywood hulls submersibles, work chamber	9/46 9/37
submersibles (by name)	7/3/
ALUMINAUT	3/11, 11/19
ALVIN	8/45
ASHERAH	11/59
AUTEC I	8/45
BEAVER III	8/36, 9/22
DEEP JEEP	7/33
DEEP QUEST	3/39
DEEPSTAR	2/30, 7/23
DOWB	8/44
ME TOO	6/32
PISCES	6/32
PERRY CUBMARINE	12/19
STAR II & STAR III	6/32
TRIESTE	5/19, 10/31
WALTER KIDDE	9/34
SUBROC	1/34
sunken vessel, recovery	2/38
Sweden	5/100
survey-research (see research-surve	
prinelingsearch (see lesearch-solve	my/

technology mix, oceanography telemetry, buoy system temperature-depth system temperature, see surface testing, acoustic underwater thermal structure, currents ride study, international torpedoes 1/34, 3/38, 11/23, 11/39, towed systems, depth determination tracking, navigation track associations.	2/15 5/79 2/22 3/16 8/37 2/11 1/21 11/43 2/22 4/28 7/19
trade show, oceanographic	12/14
transponder, deepsea trawler, aluminum 10/5, TRIESTE 5/19, Twelve Mile Limit, fisheries Two Innerspaces?	6/19 10/19 10/31 11/20 4/7
	-
Undersea Land Rush, 1966 Style (editorial)	1/9
VLF (Very Low Frequency) Venezuela vessels, oceanographic 1/17, 1/67, 1/71,	12/24 9/67 2/36.
2/46, 3/11, 3/36, 3/52, 4/13, 4/26, 5/82, 5/100, 6/60, 7/19, 7/47, 8/20, 8/23, 8/51, 9/34, 9/67, 10/52, 11/66,	4/48, 8/22, 12/25
Vietnam, Navy Vitro Laboratories, (profile)	9/17 7/26
water resources 5/20, 6/38,	11/19 10/37 , 8/12 10/37
weather,	
Federal plan forecasting center research satellite data	1/19 1/15 3/11 12/17
welders, ship Westinghouse Underseas Div., (profile) Will Russia Win The West Space Race?	11/57 2/30
(editorial) windows, deepsea application wire guided torpedoes world law, oceans	3/9 5/42 7/26 1/53

REPRINTS AVAILABLE LISTING AND PRICES SEE READER SERVICE CARD



**NEW!** For all hydrostatic testing techniques with water or any other fluids. ■ Compact: 8" x 12" x 9" high . . . weight 17 lbs. ■ Valves, fittings and tubing available for plumbing your set-up. **Send today** for data. Write ENERPAC Test Systems, Butler, Wisconsin 53007.



Circle No. 29 on Inquiry Card



### A 2.7 volt operational amplifier for battery-powered instrumentation

■ Designed for use in remote and portable instruments employing battery power, the new Nexus Model 2LV-1 amplifier operates on a supply voltage of ±2.7 volts . . . has a low standby power drain of approximately 4 milliwatts.

■ The new unit which employs all-silicon semiconductors and operates over the range from -25° to +85°C, is particularly well-suited to use in medical, oceanographic and aerospace instrumentation where low power consumption is a critical requirement. The unit offers a d.c. openloop gain of 10,000, with an output capability of ±1.5v at ±1.5 ma.

Reliable long-life and economical operation are important advantages of the 2LV-1. Two Mallory TR132R mercury batteries (shown in photograph mounted next to 2LV-1) provide approximately 1000 hours of operation. For longer life, four RM-12R mercury cells will provide approximately 4000 hours, or four RM-42R cells may be employed for approximately 15,000 hours of operation.

#### Typical Electrical Characteristics (@ 25°C unless noted)

1	Supply voltage
	Supply current (quiescent)
1	Output voltage range (R <sub>L</sub> = 1K)=1.5v (a. 1.5ma
1	E <sub>cm</sub> *1.5v
1	△E <sub>85</sub> /△T (-25°C to +85°C)
ı	los*5na
ı	△los/△T (-25°C to +85°C)
ı	A <sub>0</sub> (R <sub>1</sub> = 1K)10K
1	Input Z differential0.2 megohms
1	Input 2 common-mode

480 NEPONSET STREET CANTON, MASS. 02021 Tel: (617) 828-9000 TWX (617) 828-1022

Circle No. 30 on Inquiry Card
UNDERSEA TECHNOLOGY

